

POLICE VEHICLE EQUIPMENT AND VEHICLE UPFITTING

The Emergency Police Vehicles described in this specification are designed to meet or exceed the requirements of the Milwaukee Police Department Fleet Manager, and stay in accordance with Federal Vehicle Guidelines. **This request is for MPD vehicle uniformity and specific equipment requested is currently being utilized - all vehicles are required to be the same!**

NOTE: THIS POLICE VEHICLE EQUIPMENT AND VEHICLE UPFITTING SPECIFICATION AND ANY ACCOMPANYING SPECIFICATION OR BID CAN BE APPEALED.

YOUR APPEAL MUST BE SUBMITTED IN WRITING TO THE CITY PURCHASING DIRECTOR FOR ALL BIDS **NO LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING.**

YOUR APPEAL MUST NOT ONLY IDENTIFY THE PROVISION, TERM OR CONDITION THAT IS CAUSING PROBLEMS, BUT ALSO YOUR PROPOSED ALTERNATE POSITION, TERM OR CONDITION AND BE SUPPORTED BY TECHNICAL DATA, TEST RESULTS AND OTHER INFORMATION.

CONTACT THE APPROPRIATE PURCHASING AGENT OR THE PROCUREMENT SPECIALIST FOR THE APPEAL FEE AND APPEAL FILING INSTRUCTIONS.

APPEALS RECEIVED LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING OR WITHOUT SUFFICIENT DETAILS **WILL NOT BE CONSIDERED.**

NOTICE

AN APPEAL FEE (CHECK OR MONEY ORDER) WHICH IS 1% OF THE ESTIMATED DOLLAR AMOUNT OF THIS CONTRACT IS REQUIRED WITH A BID OR SPECIFICATION APPEAL. THIS FEE IS A PREREQUISITE FOR PURSUING THE APPEAL AND MUST ACCOMPANY THE APPEAL. THE APPEAL FEE WILL BE RETURNED IF THE APPEAL IS UPHELD.

CAUTION: A BID THAT DOES NOT FULLY COMPLY WITH ALL OF THE PROVISIONS, TERMS, AND CONDITIONS OF THIS POLICE VEHICLE EQUIPMENT AND VEHICLE UPFITTING, OR ANY ACCOMPANYING, SPECIFICATION AND BID MAY BE DETERMINED AS A COUNTEROFFER AND MAY RESULT IN THE BID BEING REJECTED FOR NON-RESPONSIVENESS.

- I. GENERAL: It is the intent of this specification to describe the minimum requirements for equipment and or services to be purchased by the City of Milwaukee. All items, details of construction, services or features not specifically mentioned which are regularly furnished in order to provide Zero Balance Concentration Account Service for Accounts Payable and Payroll shall be furnished at the bid price and shall conform in strength, quality and

workmanship to that usually provided by the practice indicated in the accompanying specifications.

- II. AWARD AUTHORITY: The City Purchasing Director will be the sole judge of the quality and suitability of the equipment, materials and/or services in its determination of the successful bidder for all bids.

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INSTRUCTIONS TO BIDDERS

(ALSO CALLED: INSTALLER & EQUIPMENT SUPPLIER FOR THIS BID)

This specification covers a new, Police Type Vehicle (PTV). A vehicle in compliance with this specification shall be defined as a standard PTV. This statement covers all vehicles that are upfitted.

The purpose of this document is to provide minimum specifications and test parameters for the installers of an emergency police vehicle that meets the needs and desires of this agency. It establishes essential criteria for the design, performance, equipment, and appearance of the vehicle. All dimensions listed are given as the approximate sizes required to meet the needs of this department. The object is to provide a vehicle that is in accordance with nationally recognized guidelines.

It should be noted, however, that this specification is written around the specific needs of this department. With the intent to standardize certain components, specific brands have been specified in certain places. This has been done to establish a certain standard of quality and consistency.

Materials used in the construction shall be new and not less than the quality conforming to current engineering and manufacturing practices. Materials shall be free of defects and shall be suitable for the intended use.

The base bid will be in strict compliance with these specifications without any exceptions, substitutions or qualifiers. The successful bidder will be responsible for delivering a vehicle meeting these specifications. **Alternative items may be considered, however vendors must comply with the below requirements:**

In addition to submitting a bid on the forms provided by the City, vendors shall submit a detailed breakdown of any alternative equipment that is not specifically listed in this specification, the City of Milwaukee's Invitation to Bid #15598, and Attachment #1 – Itemized Pricing Worksheet. This detailed breakdown shall follow the same sequence as the items listed in the specification and shall provide sufficient information so that confirmation of specification compliance can be easily determined.

Failure to submit the bid in the manner described herein can result in bid rejection.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

1. Information and Descriptive Material

The bidder must provide all requested information in the space provided on the invitation to bid form. Vehicle build sheets will be provided to the MPD Fleet Manager once bid has been approved for an upfitter; with detailing specifications for the particular type vehicle of which at least one (1) complete of sketches, descriptive literature, and complete specifications covering the products offered.

Will you comply with these requirements?

☐ Yes ☐ No

2. Warranty

A Lifetime Electrical Warranty shall be provided that covers the wire harness and all connections made to original equipment manufacturer (OEM) circuits. The Warranty is extended to the original purchaser of the vehicle for its full term of service.

Will you comply with these requirements?

☐ Yes ☐ No

3. Warranty Surety

To ensure quality, service, and full compliance for the installation of the emergency equipment warranties; the Vehicle Upfitter must install all items and will not substitute any components or subcontract any work. Additional elements constructed and installed "in house" are required to ensure service and parts availability. **Any subcontracting or lease/rental agreements to outside agencies will fail to meet this requirement. No exceptions will be accepted and/or authorized.**

Will you comply with these requirements?

☐ Yes ☐ No

- The Vehicle Upfitter is required to stock parts, provide MPD with inventory and replenish old inventory as needed, as well as warranty all emergency equipment items purchased through upfitter.
- The MPD inventory will consist of complete sets of all lighting and apparatus required for two patrol vehicles.

Will you comply with these requirements?

☐ Yes ☐ No

- The Vehicle Upfitter must be Whelen Factory Certified for CanTrol Integration and Control System that is utilized in the K9 Cars. Please provide documentation of this certification with bid documents. Equivalents for these items may be considered, but must meet or exceed the specifications of the Whelen CanTrol (Section B, #7). In the case of an equivalent being accepted, the vendor must be certified – by the manufacturer – to install said equipment.

Will you comply with these requirements?

☐ Yes ☐ No

- The Vehicle Upfitter must provide documentation of direct warranty of all equipment installed. **Upfitter must have equipment used for emergency lighting on MPD vehicles in stock at all times throughout the duration of the contract.**

Will you comply with these requirements? ☐ Yes ☐ No

- The Vehicle Upfitter must provide MPD approved build sheets for every vehicle.

Will you comply with these requirements? ☐ Yes ☐ No

- The Vehicle Upfitter must provide Quality Control checklists for every vehicle build for approval by the MPD Fleet Manager, prior to upfitting.

Will you comply with these requirements? ☐ Yes ☐ No

4. Delivery

Bidder must be able to begin vehicle production within one (1) month of the full execution of this contract. This being said, the delivery schedules that are submitted by the bidders shall automatically become binding upon the successful bidder. Once full vehicle production has started, the bidder must be able to deliver at least two (2) upfitted vehicles per week, in order to ensure their capability to meet the varying needs of the Milwaukee Police Department. **Failure to meet – or exceed – these guidelines in the manner described herein can result in bid rejection.**

Will you comply with these requirements? ☐ Yes ☐ No

5. Service and/or Installation Facility

The bidder's facility must be within 25 miles of City of Milwaukee limits.

The successful bidder must have access to a service/installation facility. This is required for MPD to deliver and pick up vehicles. **There will be no exceptions to this requirement.** Bidders must list below the nearest service facility and parts department to the purchaser.

FACILITY NAME: _____

ADDRESS: _____

PHONE NUMBER: _____

CONTACT NAME: _____

Will you comply with these requirements? ☐ Yes ☐ No

6. References

All bidders must submit a source containing a minimum of three (3) customers who are operating a similar model Police Vehicle as described in this specification. The customer reference list shall contain the Department name, address, phone number, and contact person.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

7. Quality Assurance

To ensure that proper engineering and production control guidelines have been implemented, the vehicle installer shall employ and integrate a quality and process control program, including specific process controls for facets of the manufacturing process deemed to be "critical". These critical elements of the process shall be documented and that documentation shall be readily available not only to installation personnel, but also to MPD authorized personnel who visit the installation facility. The critical elements shall be denoted on the vehicle control document, which accompanies the vehicle through the manufacturing process. A continuous series of inspections shall be performed and signed off including, but not be limited to, the following:

- Visual inspection of the body, paint, and exterior attachments.
- Visual and mechanical inspection of the window controls.
- Visual inspection of cabinets, sliding/hinged cabinet doors, moldings, flooring, walls, headliner, and cushions.
- Visual inspection of exterior paint, decals, and lettering.
- Operational inspection of all electrical systems. This must consist of tests of battery voltage, electrical load tests, alternator output, beacons, flashers, siren, interior lighting, compartment lighting, power exhaust vent, scene lights, load lights, chassis lights, silent signal lights/buzzer, heat/cool unit, and any optional electrical devices as furnished by the installer. The current requirements of each device tested must be noted on an inspection sheet, together with the total current requirements.
- The completed vehicle must be test driven a minimum of one (1) mile on paved highways and on rough terrain to check handling, brakes, acceleration, and noises.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

8. Pre-Delivery Inspection

City of Milwaukee Fleet Manager or person whom they designate, will inspect the vehicles and the vehicle control/inspection document at the installation facility prior to pick up. Any noted discrepancies shall be corrected at this facility prior to delivery.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

SECTION A – VEHICLE

1. Police Patrol Vehicle

This is any vehicle that has the ability to have Officer's complete the tasks of patrol.

2. Police K9 Vehicle

This is any vehicle set up to carry a K9 Officer and also have the components of a Patrol Vehicle.

3. Police Prisoner Van

This is any vehicle that carries multiple prisoners in the same vehicle. Note that this vehicle will also have most of the Patrol equipment installed in it.

4. Police Forensic Vehicle

This is any vehicle that carries Forensic Officer and their equipment in the same vehicle. Note that this vehicle will also have most of Prisoner Van equipment installed in it, as well as storage and shelving units in rear of vehicle which will be provided by the Milwaukee Police Department.

Do you have experience with maintenance and installation for all types of vehicles listed?

☐ **Yes** ☐ **No**

SECTION B – ELECTRICAL SYSTEMS & COMPONENTS

1. Vehicle Main Wiring

The main wire harness will be constructed of UL rated wiring. All wires shall be of a gauge size to carry 125% of the current required without overheating. All circuit wires are to be color-coded and stamped with the function of the circuit for every two (2) inches for the continuous length of the line. Where practical, all wires shall be routed in high temperature looms with a rating of 300° degrees Fahrenheit. There will be locking connectors at the console, rear electronic board, and all Ford Upfitter Connectors. The upfitter will provide the plug and play harness for all patrol/k9/van/prisoner wagon - vehicles.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

2. Alternator and Battery

The Ford OEM alternator and battery will be electronically tested after the installation of the electronic equipment. It will be verified that both are in good working order and that the alternator is of appropriate size.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

3. Circuit Protection

Circuit breakers and relays shall be mounted securely to the inside of the electrical control center located in the spare tire compartment. The control center shall be large enough to house all circuit breakers, relays, controllers, and radio equipment. All auxiliary circuitry shall incorporate overload protection devices of automatic or manual reset thermal breaker types with lug style connectors and shall continuously carry 100% of the rated capacity for a minimum of one (1) hour. All circuit breakers and relays are to be spade mounted snap-in type for easy removal. All fuse panels must have an LED light per circuit that illuminates when the circuit is open. The fuse panels in the console must be easily seen without the use of tools. One (1) **Main Manual Reset 80 Amp Breaker #DLC-76608** will be used and placed in accessible area of electrical control center. One (1) **Kussmaul Timer #390-0030-5** will be placed in accessible area of electrical control center.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

4. Circuit Grounding

Grounding must be accomplished by use of a full ground wire harness. All ground wires shall be black in color and labeled with the word "GROUND" or lettering "GRND". Ground return connections shall be made to the chassis structure, protected from corrosion, and available for service. The main ground will be 4 gage (Ga) and bolted to the vehicle and coated with corrosion preventer.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

5. Installation and Protection

Wires must be grouped or harnessed where practical. Apertures in metal through which cables pass shall be protected with nonmetallic bushings or grommets. All auxiliary circuits shall be wired separate and distinct from the vehicle chassis circuits, color coded and clearly labeled. All wire passing from the console head shall be encased in a heavy-duty loom. All wiring shall be clipped or otherwise attached at suitable intervals to prevent rubbing or chafing due to wire movement, vibration, etc. All main harness wiring must be stamped, color coded, and labeled to indicate wire function. **No exceptions will be allowed.**

Will you comply with these requirements?

☐ Yes ☐ No

6. Whelen Carbide (Siren, LF Siren, Emergency Lighting – “Controller”)

The Patrol and Forensic vehicles will use the **Whelen Carbide Model #CCSRNT5 with the CanPort Option with #CANCTL6 Control Head**. This unit will be used to control all aspects of the upfitted vehicle. This unit will flash the lights, and control the light bar. It will also control the weapon release. Programming will be the same on all like vehicles and options approved by MPD.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Required Specifications:

- One single unit will control all lights, sirens, and the light bar, which only receives the vehicle CAN bus signals via the OBDII diagnostic port directly. This product must be a “Read Only” interface product. This interface should be a one-to-one interface, with **no third party OBDII interface**.
 - MPD will only utilize a “Read Only” product, as it is safer and cannot cause any possible false or unwanted activation of OEM vehicle functions by sending signals back to the vehicle.
- The Controller will control all perimeter warning lighting, interior upfitted lights, and the light bar. The light bar will be directly controlled by each individual light head from the controller, enhancing officer safety.
- Note: one single supplier of emergency lighting for vehicles is requested to ensure product warranty remains intact and that the requested inventory of all items is available.
 - Warranty is often voided if manufacturer’s products are used with an alternative manufacturer’s products. If a bidder wishes to use products from more than one manufacturer, they are required to obtain official documentation from all manufacturers involved stating that no warranties will be voided.
 - If the bidder wishes to use upfitting equipment from more than one (1) manufacturer, they will need adhere to SAE Class 1 testing requirements.
- Push buttons switches shall be tactilely recognizable, allowing officers to utilize the controller without the officer taking their eyes off of the road, ensuring officer safety. Upon use, buttons will have a visible lighting change and audible (“beep”) feedback to the user. Each switch will also produce a “click” sound when pushed On/Off as another positive feedback method that the switch has been changed.
 - The backlighting in each switch will change to another color if that switch is activated. The switch backlight must have a low intensity feature for ease of night time visibility.

- Control heads that do not have this feature are not acceptable; this requirement is to prevent the officer from having to take their eyes off the road in order to maintain both officer and public safety.
- Each and every switch/rotary knob functions shall be fully programmable and must allow the placement of any siren or light function in any push button/rotary knob position for complete programmability by the end user via a Window-based program that must be provided to the MPD.
 - Training must be provided to MPD for programming of this unit.
 - The MPD will approve the vendors developed program that can be extracted from one system and inserted into an unlimited number of systems with ease.
- Each of the push button switches shall have its own back-lit legend tab. There shall be multiple legends to choose from and this will help in identifying the functions that are in use as well as protect controller from liquids and physical damage.
- Systems that allow changes through control head switches or through DIP switches are not secure and are not acceptable.
- The control head shall have a Rotary Knob for Siren Functions; this increases officer safety by not having requiring the officer look down to see what button to press to change siren tones. Each position of the Rotary Knob shall be programmable, with a minimum of eleven (11) programmable push buttons.
- The controller will utilize the vehicle output signals from Onboard Diagnostics II (OBDII) to perform the following functions when specific aspects of vehicle are activated:

Park Function:

- Officer Safety: Once the Lights/Siren are activated in any position on the control head, and vehicle is placed in “park”, the controller will automatically disable the siren/howler. If the vehicle is placed back in drive, or the control head is manually switched, or the OEM horn is pushed, the siren is active once again.
- Officer Safety/Citizen Awareness: The light bar flash pattern is automatically changed to a “traffic control flash pattern” by the controller when the vehicle is placed in park to help eliminate traffic from being drawn towards the flashing lights of first responder vehicles and, in turn, reduces potential injury to officers or citizens, as well as not causing additional incidents.
- The Park function will also allow officers to view the scene more effectively by reducing the intensity of the bright lights reflecting on surrounding scenery.

Reverse Function:

- Officer Safety/Citizen Awareness: If the vehicle is placed in reverse while the emergency lighting is activated, the rear light bar flash pattern is automatically changed by controller and outer white lights are then activated on the rear of the light bar. LED reverse lights are also activated to help

illuminate the area for better viewing and to let others recognize vehicle is about to back up.

Hatch Function:

- Officer Safety/Citizen Awareness: If hatch is opened, the interior dome lights in the rear storage/hatch area be automatically illuminated by the controller, which can change the lights from white to red.
- The controller will also activate the red and blue lights in the hatch door at this time - if the control head is in position 1-3.

Service Brake Function:

- Officer Safety/Citizen Awareness: When the brake pedal is applied, the following functions will be automatically activated by the controller
 - When emergency lights are activated on control head, and brake pedal is activated in vehicle, the rear of light bar will automatically change its flash pattern and indicate to following emergency vehicles that the vehicle is braking.

Front Drivers Door Function:

- Officer Safety: When the driver's door is opened, this will automatically activate the controller to change the flash pattern of the light bar and turn off the front corner allowing the officer to assess the scene properly and effectively, eliminating interference caused by light bar.

Front Passenger Door Function:

- Officer Safety: When front passenger door is opened, this will automatically activate the controller to change the flash pattern of the light bar and turn off the front corner allowing the officer to assess the scene properly and effectively, eliminating interference caused by light bar.

Rear Doors Function:

- Officer Safety: When either rear door is opened, this will automatically activate the controller to turn-on interior prisoner domes and shut off the rear corners of the light bar allowing the officer to assess the scene properly and effectively, eliminating interference caused by light bar.

Turn Signal Function:

- Officer Safety/Citizen Awareness: When emergency lights are activated on the control head and the turn signals are activated in vehicle, the rear of light bar will automatically change its flash pattern and activates amber lights, indicating to following emergency vehicles that the vehicle is turning.

Daylight Function:

- Light bar and exterior emergency lights on the vehicle will change automatically, by not applying full power lighting, to prevent incidents.

Function Buttons on Controller:

- “Take Down” Control Button:
 - First Button Press – Activates the center two (2) white take down lights
 - Second Button Press – Activates all forward white take down lights
- “Left Alley” Control Button
 - First Button Press- Only center alley lights activated
 - Second Button Press- All alley lights (30°) activated
- “Right Alley” Control Button
 - First Button Press- Only center alley lights activated
 - Second Button Press- All alley lights (30°) activated
- “Dome” Control Button (Prisoner and Cargo Area)
 - First Button Press – Turns on dome lights in the prisoner and the cargo area
- “Cruise” Control Button (Scene Lighting – Warning/Glow)
 - First Button Press – Places all emergency lights into low power, but still meets Society of Automotive Engineers (SAE) Class 1 output requirement
- “Steady Flash” Control Button
 - First Button Press - This makes all emergency lights and the light bar steady burn and flash every 5 seconds. These lights automatically go into low power mode, allowing officers to control the scene effectively with less intense lighting.
- “Red” Control Button
 - First Button Push - Activates an Accessory, requires a momentary output.
- “Blue” Control Button
 - First Button Push - Activates an Accessory, requires an 8 second timer output.
- “Manual” Control Button
 - First Button Push – Activates vehicle siren.
- “Air Horn” Control Button
 - First Button Push – Activate air horn.
- Control Head “Back Lighting” Button
 - First Button Push – Brightest light setting.
 - Second Button Push – Seventy-five (75) percent lighting output.
 - Third Button Push – Fifty (50) percent lighting output.
 - Fourth Button Push – Lighting completely off.
- “Right Traffic Advisor” Button
 - First Button Push – Activates rear amber lights on the right side of the mounted light bar.
- “Left Traffic Advisor” Button
 - First Button Push – Activates rear amber lights on the left side of the mounted light bar.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

7. Whelen Control

The K9 and Prisoner vehicles, as well as the OBD2 inputs, will use the **Whelen Control Model #CANWC1 w/ CTL6 & CanPort with #CANCTL6 Control Head**. The Control system will also be a complete emergency backup system to monitor the K9 Officer Safety Controls. The Control will be interfaced into a Text Dialer to send alerts to the Officer. Installation and programming must be made by Factory Trained Control Techs that were trained at the Whelen Connecticut Facility. Control Training must be current.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Required Specifications:

- This system is a complete emergency backup system to the K9 controls for K9 Officer Safety. It must have its own separate temperature sensor, and CO sensor. It shall also control the fans and windows upon any primary K9 control system failure. This system shall have the capability of creating any rule for safety controls on a K9 vehicle to create the safest environment for a K9 Officer.
- One single unit will control all lights, sirens, and the light bar, which only receives the vehicle CAN bus signals via the OBDII diagnostic port directly. This product must be a “Read Only” interface product. This interface should be a one-to-one interface, with **no third party OBDII interface**.
 - MPD will only utilize a “Read Only” product, as it is safer and cannot cause any possible false or unwanted activation of OEM vehicle functions by sending signals back to the vehicle.
- The Controller will control all perimeter warning lighting, interior upfitted lights, and the light bar. The light bar will be directly controlled by each individual lighthead from the controller, enhancing officer safety.
- Note: one single supplier of emergency lighting for vehicles is requested to ensure product warranty remains intact and that the requested inventory of all items is available.
 - Warranty is often voided if manufacturer’s products are used with an alternative manufacturer’s products. If a bidder wishes to use products from more than one manufacturer, they are required to obtain official documentation from all manufacturers involved stating that no warranties will be voided.
- Push buttons switches shall be tactilely recognizable, allowing officers to utilize the controller without the officer taking their eyes off of the road, ensuring officer safety. Upon use, buttons will have a visible lighting change and audible (“beep”) feedback to the user. Each switch will also produce a “click” sound when pushed On/Off as another positive feedback method that the switch has been changed.
 - The backlighting in each switch will change to another color if that switch is activated. The switch backlight must have a low intensity feature for ease of night time visibility.

- Control heads that do not have this feature are not acceptable; this requirement is to prevent the officer from having to take their eyes off the road in order to maintain both officer and public safety.
- Each and every switch/rotary knob functions shall be fully programmable and must allow the placement of any siren or light function in any push button/rotary knob position for complete programmability by the end user via a Window-based program that must be provided to the MPD.
 - Training must be provided to MPD for programming of this unit.
 - The MPD will approve the vendors developed program that can be extracted from one system and inserted into an unlimited number of systems with ease.
- Each of the push button switches shall have its own back-lit legend tab. There shall be multiple legends to choose from and this will help in identifying the functions that are in use as well as protect controller from liquids and physical damage.
- Systems that allow changes through control head switches or through DIP switches are not secure and are not acceptable.
- The control head shall have a Rotary Knob for Siren Functions; this increases officer safety by not having requiring the officer look down to see what button to press to change siren tones. Each position of the Rotary Knob shall be programmable, with a minimum of eleven (11) programmable push buttons.
- The controller will utilize the vehicle output signals from Onboard Diagnostics II (OBDII) to perform the following functions when specific aspects of vehicle are activated:

Park Function:

- Officer Safety: Once the Lights/Siren are activated in any position on the control head, and vehicle is placed in “park”, the controller will automatically disable the siren/howler. If the vehicle is placed back in drive, or the control head is manually switched, or the OEM horn is pushed, the siren is active once again.
- Officer Safety/Citizen Awareness: The light bar flash pattern is automatically changed to a “traffic control flash pattern” by the controller when the vehicle is placed in park to help eliminate traffic from being drawn towards the flashing lights of first responder vehicles and, in turn, reduces potential injury to officers or citizens, as well as not causing additional incidents.
- The Park function will also allow officers to view the scene more effectively by reducing the intensity of the bright lights reflecting on surrounding scenery.

Reverse Function:

- Officer Safety/Citizen Awareness: If the vehicle is placed in reverse while the emergency lighting is activated, the rear light bar flash pattern is automatically changed by controller and outer white lights are then activated on the rear of the light bar. LED reverse lights are also activated to help

illuminate the area for better viewing and to let others recognize vehicle is about to back up.

Hatch Function:

- Officer Safety/Citizen Awareness: If hatch is opened, the interior dome lights in the rear storage/hatch area be automatically illuminated by the controller, which can change the lights from white to red.
- The controller will also activate the red and blue lights in the hatch door at this time - if the control head is in position 1-3.

Service Brake Function:

- Officer Safety/Citizen Awareness: When the brake pedal is applied, the following functions will be automatically activated by the controller
 - When emergency lights are activated on control head, and brake pedal is activated in vehicle, the rear of light bar will automatically change its flash pattern and indicate to following emergency vehicles that the vehicle is braking.

Front Drivers Door Function:

- Officer Safety: When the driver's door is opened, this will automatically activate the controller to change the flash pattern of the light bar and turn off the front corner allowing the officer to assess the scene properly and effectively, eliminating interference caused by light bar.

Front Passenger Door Function:

- Officer Safety: When front passenger door is opened, this will automatically activate the controller to change the flash pattern of the light bar and turn off the front corner allowing the officer to assess the scene properly and effectively, eliminating interference caused by light bar.

Rear Doors Function:

- Officer Safety: When either rear door is opened, this will automatically activate the controller to turn-on interior prisoner domes and shut off the rear corners of the light bar allowing the officer to assess the scene properly and effectively, eliminating interference caused by light bar.

Turn Signal Function:

- Officer Safety/Citizen Awareness: When emergency lights are activated on the control head and the turn signals are activated in vehicle, the rear of light bar will automatically change its flash pattern and activates amber lights, indicating to following emergency vehicles that the vehicle is turning.

Daylight Function:

- Light bar and exterior emergency lights on the vehicle will change automatically, by not applying full power lighting, to prevent incidents.

Function Buttons on Controller:

- “Take Down” Control Button:
 - First Button Press – Activates the center two (2) white take down lights
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 - First Button Press- Only center alley lights activated
 - Second Button Press- All alley lights (30°) activated
- “Dome” Control Button (K9 Cage and Cargo Area)
 - First Button Press – Turns on dome lights in the K9 and the cargo area
- “Cruise” Control Button (Scene Lighting – Warning/Glow)
 - First Button Press – Places all emergency lights into low power, but still meets Society of Automotive Engineers (SAE) Class 1 output requirement
- “Steady Flash” Control Button
 - First Button Press - This makes all emergency lights and the light bar steady burn and flash every 5 seconds. These lights automatically go into low power mode, allowing officers to control the scene effectively with less intense lighting.
- “Red” Control Button
 - First Button Push - Activates an Accessory, requires a momentary output.
- “Blue” Control Button
 - First Button Push - Activates an Accessory, requires an 8 second timer output.
- “Air Horn” Control Button
 - First Button Push – Activate air horn.
- Control Head “Back Lighting” Button
 - First Button Push – Brightest light setting.
 - Second Button Push – Seventy-five (75) percent lighting output.
 - Third Button Push – Fifty (50) percent lighting output.
 - Fourth Button Push – Lighting completely off.
- “Right Traffic Advisor” Button
 - First Button Push – Activates rear amber lights on the right side of the mounted light bar.
- “Left Traffic Advisor” Button
 - First Button Push – Activates rear amber lights on the left side of the mounted light bar.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

8. Mandatory Override Switch Option

There shall be two (2) override switches mounted in the console. They will be rocker type switches. One (1) switch will be Single-Pole Single-Throw (SPST) and will provide a Position 3 override to the Carbide or Control Lighting. The second switch will be SPST momentary, and be the override to the Carbide or Control System. **Switches will not be labeled.**

This is a MANDATORY requirement of emergency lighting and controls electrical system. These switches must be able to override the manufacturer controller in the event of failure.

Will you comply with these requirements?

☐ Yes ☐ No

9. Power Points and USB

There shall be a minimum of one (1) cigar type power point and one (1) Dual USB type charging port. Both items will be powered by the timed circuit and mounted in the center console.

Will you comply with these requirements?

☐ Yes ☐ No

SECTION C – WARNING/LIGHTING SYSTEMS

1. Roof Light bar – Patrol, K9 and Forensic – 48”

The roof mounted light bar will be Whelen Legacy DUO Model #GB8EP3JTA. The light bar shall have the following domes: Two (2) #GB8ENDX and One (1) #GBDIVIDX.

Roof Light bar – Prisoner Wagon – 54”

The roof mounted light bar will be Whelen Legacy DUO Model #GB2SP3JTA. The light bar shall have the following domes: Two (2) #GB8ENDX and One (1) #GBDIVIDX.

Each light bar will have knurled 90-degree fittings with water tight gaskets that will be used to route the cable thru the roof. The vehicle emergency lighting programming will be approved by the MPD. The light bar will have Low Profile mounting feet and use the infrared (IR) photo cell to automatically dim the light bar, both in park and at night. The light bar domes will be smoked and still meet SAE Class 1 light output requirements. An internal IR photocell will be inside the light bar to control the entire system via the light/siren/light bar controller. The light bar shall have total internal reflector (TIR) for the Alleys and Take Downs modules. The domes shall be sprayed with a hard coat to protect them from weather elements. The light bar must be mounted with stainless steel straps and hardware. Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

2. Rear Warning Lights – Patrol/K9 Vehicles - Hatch and Cargo Area

There shall be two (2) Whelen ION-T Series lights mounted on the rear of the vehicle. These lights will be fitted into the exterior hatch center molding – **Whelen Models #TLI2DX and #TLI2EX.**

There shall be two (2) Whelen ION-T Series mounted into in the interior hatch panel - **Whelen Models #TLIRX and #TLIBX.**

There shall be two (2) Whelen Vertex mounted on the side of the rear spoiler with **Whelen Vertex Flanges Model #VTXFB with Whelen Vertex Model #TX609R and #XTX609B.**

There shall be two (2) Whelen mounted cargo domes attached to the interior hatch panel and one (1) Whelen mounted cargo dome in the cargo area of the vehicle – **Whelen Model #3SC0CDCR.**

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

3. Rear Doors and Cargo Area- Prisoner and Forensic Vehicles

There shall be Two (2) Whelen M4 Series to be mounted to rear doors (Lower) – **Whelen M4 Series Model #M4D & #M4E.**

Two (2) **Whelen ION T Series Model #TLI2KX & #TLI2MX** will be mounted and installed behind glass.

Two (2) TLI-Mini Red/Blue **Whelen Model #TLIMIBX & #TLMIRX** will be mounted on side of doors.

Four (4) **Whelen Model #3SC0CDCR Cargo Domes** will be installed in Cargo area of vehicle.

Three (3) **Whelen Load Lights – Whelen Model #PELCB** will be mounted in rear area of van to provide light to rear cargo area with doors open.

All lights will have the mounted hardware coated for corrosion protection. The rear warning lights will be smoked and still meet SAE Class 1 light output requirements. The lens shall be sprayed with a hard coat to protect them from weather elements.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

4. Rear Taillight Flasher

One (1) **Whelen Taillight Flasher Model #SSF5150D** will be installed in the passenger side cargo compartment. A direct plug and play harness will be used to connect to the vehicle and the flasher unit. **No cutting of OEM wires will be permitted.** The flasher will be easily replaced by plug and play. The reverse light bulbs will be replaced with a minimum of 1500 lumen LED bulbs. The flasher will be overridden by stop and reverse vehicle signals. The rear taillight flasher will be a “plug and play” design that directly connects into an upfitter harness. There will be NO splicing into the OEM wiring to the taillight assembly.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

5. Mirror Warning Lights

Whelen Mirror lights will be installed. **Whelen Model #LINSV2RX and #LINSV2BX** using the **Whelen Model #LSV34BKT** mounts. Both lights will be programmed to steady burn. A Mizu P25 jumper harness will be installed to connect the lights to the Ford OEM mirror warning lights. **No cutting of OEM wires will be permitted.** The mirror light will have a vehicle specific bezel that mounts to the OEM mirror assembly, provide 180 degrees of warning light, and provide downward facing white light to illuminate the ground for officer safety on traffic stops and traffic control. The lens will be smoked and sprayed with a hard coat to protect them from weather elements.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

6. Prisoner Compartment Domes

Two (2) **Whelen 3SC0CDCR** white domes will be installed on the headliner and controlled by the Carbide/ Cantrol. The lights will illuminate with the opening of the rear doors or manual button activation. The dome lights will be made of metal backed lights for better heat dispersion. The light will be less than 3/8” tall so that a prisoner cannot injure themselves on the light.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

7. Grille and Side Warning Lights

Patrol & K9 Vehicles - There shall be two (2) Microns mounted in the breakout pockets of the front grille. Two (2) **Whelen Microns Model #MCRNTRX and #MCRNTBX** will be installed and the mounted hardware coated for corrosion protection.

Prisoner and Forensic Vehicles - There shall be two (2) **Whelen Vertex #XTX609R and #XTX609B** mounted to trim piece front side of mirrors. Also install Two (2) sets of Whelen M4 Series to be mounted in the grill and side panel of body. Two (2) **Whelen M4 Series Model #M4D and #M4E** will be installed and the mounted hardware coated for corrosion protection.

The lights must be wired with Mini Mizu P25 connectors and pin the same way as other lights. The light wiring shall have a service pigtail for ease of replacing lights. These lights will be connected into the Ford Upfitter harness system. The grille warning lights will be smoked and still meet SAE Class 1 light output requirements. The grille light should bolt directly into the OEM holes in the grille. No additional holes will be drilled.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

8. Spotlight

Ford OEM "A" pillar spotlight(s) will be purchased in vehicle by MPD. The bid may call for **Whelen LED replacement Model #P46SLCX**. An LED smoked spotlight will replace the halogen light, which will then be returned to MPD.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

9. Siren Speaker

There shall be one siren speaker installed. One (1) **Whelen Model #SA315P** with a **#SAK51** mounting bracket will be installed, per manufacturer's specifications. This speaker will be wired into the Ford Upfitter harness system.

- The siren speakers need to be the same manufacturer as the siren amp manufacturer due to SAE Class 1 testing requirements.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

10. Howler Speakers

Two (2) 100-Watt **Whelen Model #HOWLER LF speakers** with a **Whelen Model #HWLRB13** mounting bracket will be installed per the manufacturer's specifications. The speakers will be wired via the Ford manufactured twisted pair of wires with waterproof connectors. A pair of 100 watt low frequency siren speakers will be installed, these speakers should be the same manufacturer as the siren amp.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

11. Intersection Warning Lights

Two (2) IONS will be installed in the OEM headlight pockets. **Whelen Model #IOND** and **#IONE** lights will be used. A mechanical locking knurled fitting will be used to secure the wire in the headlight housing. The lights will be wired via the Ford Upfitter wiring system. The lights shall be sprayed with a hard coat to protect them from weather elements.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

12. Headlight Flasher

Patrol/K9 - One (1) **Whelen Headlight Flasher Model #SSFFP16** will be installed into the Ford Upfitter wiring system.

Prisoner Wagon/Forensic - One (1) **Whelen Headlight Flasher Model #SSFPOS** will be installed into the Ford Upfitter wiring system.

It will be mounted with a stainless-steel bolt. This unit must be made in a "plug and play" manner by upfitter.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

SECTION D – DRIVER'S COMPARTMENT

1. Mobile Data Computer

One (1) Mobile Data Computer will be supplied by MPD. This could be, but is not required to be, a Panasonic CF-31. The installer shall supply the appropriate docking station. **Havis Docks will be used.** For this bid the **Havis Model #DS-PAN-112** will be used. This unit will contain the power supply, keys, and serial cable for the radio AVL. The Mobile Data Computer docking station will be made

of metal and have screws to allow for placement of mag mics, allowing for both durability and feasibility.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

2. Printer

One (1) **Havis Model #C-PM-109** printer box will be installed. The printer, power cable, and USB cable will be provided by MPD. Location will also be approved by MPD.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

3. Console

One (1) **Havis Model #C-VS-1308-INUT** console will be installed in patrol and K9 vehicles.

One (1) **Havis Model #C-2410** console will be installed in Prisoner Wagons and Forensic Vehicles along with a **Havis Tunnel Mount Assembly #C-TMW-TRNST-01 and Upfitter Console Mounting Plate**. The console will house the front electrical fuse panels, wire harness disconnects, and a window to see the status of the front fuse center. The following items will be installed in the console:

- **Havis C-CUP2-I Cup Holders x1**
- **Magnetic Mic x3**
- **Hint TM-5501-SMP w/ Appropriate MDC mount adapter plate**
- **Appropriate face plates for electronic equipment (C-EB40-CCS-1P / C-EB30-CH7-1P / C-LP1-PS2**

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

SECTION E – WEAPONS

1. Rifle Mount

One (1) Black Rac Weapon mount will be installed on the space saver section of the front prisoner cage. The wiring for the rifle mount will run to the console and directly plug into the Main Harness. Will be provided for each vehicle, as needed.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

2. Shot Gun Mount

One (1) **Pro Gard #G5000-UT-K 870** Shotgun mount will be installed horizontally on the upper portion of the front prisoner cage. The wiring will run to the console and directly plug into the Main Harness.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

3. Safe Stop

One (1) **Safe Stop Model #SS0002** (or the specific model required for the designated vehicle) will be installed, per the manufacturer's specifications. It will directly plug into the Main Harness. The weapon release will be dependent on the Safe Stop and Whelen Controller programming.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

SECTION F- CAGES, DIVIDERS, SKID PLATES, PUSH BUMPER

1. Prisoner Cage – Patrol Vehicle

One (1) **Pro Gard #PRPSP4714UINT13A** will be installed to protect the Officers. The Two-Way radio speaker, Wireless Mic, Rifle, Shotgun and Prisoner Camera will all be mounted to this cage. Part numbers will change in accordance with the vehicle type.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

2. Prisoner Cage/ Seat Belts – Patrol Vehicle

One (1) **Pro Gard #S4702UINT012OSB** will be installed in the vehicle. Part numbers will change in accordance with vehicle type.

Prisoner Cage/ Seat Belts – Prisoner Wagon

One (1) **Pro Gard #PT-A-917** will be installed in the vehicle. Part numbers will change in accordance with vehicle type.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

3. Door Barriers

The rear passenger door will have the OEM interior panels removed and Pro Gard items installed. If there is a window switch on the door, it must be bagged and made "Water Proof" per MPD guidelines. **Pro Gard #WB47UINT13** Window Bars will be installed along with **Pro Gard #DP47UINT13** Door Barriers, or the corresponding part for the vehicle requested.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

4. Skid Plate

One (1) **Pro Gard #SK47UINT13** Skid Plate will be installed, per manufacturer's specifications. It will allow for access to engine components.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

5. Push Bumper/Grille Guard

One (1) **Pro Gard #PB47UINT16HD** Push Bumper will be installed, per manufacturer's specifications. It will allow protection for front of vehicle and apparatus as a grille guard.

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ **Yes** ☐ **No**

6. Prisoner Cage- Van

One (1) Havis Prisoner System will be used for bid purposes, but does not limit MPD from using other manufacturers upon request.

One (1) Carbon Monoxide alarm **Havis #K9-A-305** and one (1) temperature sensor **Whelen #CANTEMPB** will be installed and wired into Whelen Control System.

Also, a door ajar lighting systems, **Whelen #D4RAAB** and **#NP6BB**, will be added and additional rear lighting will be added. *Note: The installer is responsible for adding any additional equipment required to eliminate any rattles and/or noises for no additional cost.* Reference prisoner cage specific part numbers below:

- **Havis #PT-F03-80-1**
- **Havis #PT-A-503**
- **Havis #PT-A-903**
- **Havis #PT-A-904**
- **Havis #PT-A-902**
- **Havis #PT-A-917**
- **Havis #C-2410**
- **CO Meter wired into system P#K9-A-305**

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

7. K9 Kennel

One (1) **Havis K9 Kennel** will be used for bid purposes, but does not limit MPD from using other manufacturers upon request.

One (1) Carbon Monoxide alarm **Havis #K9-A-305** and one (1) temperature sensor **Whelen #CANTEMPB** will be installed and wired into Whelen Control System. A Monnit Telemetry K9 System will also be installed in the K9 vehicles. *Note: The installer is responsible for adding any additional equipment and dynamat to eliminate any rattles and/or noises.* Reference K9 specific part numbers below:

- **Havis #K9-F18**
- **Havis #K9-A-201**
- **Havis #K9-A-303**
- **Havis #K9-A-102**
- **Havis #WGI-F18-6-FAN**
- **Havis #K9-A-103**
- **Havis #C-TTP-INUT-1**

- **Havis #C-TTP-INUT-2**
- **Havis #KNM01029-K4**
- **CO Meter & Temp Sensor wired into control system**
- **Monnit Telemetry K9 System will be installed**

Equivalents, which either meet or exceed the specifications contained herein, shall be considered.

Will you comply with these requirements?

☐ Yes ☐ No

SECTION G – COMMUNICATIONS SYSTEMS

1. Two-Way Radio

MPD will supply one (1) remote head radio, RF deck (2 decks for VTAC option), power cables, mic and speaker per vehicle for installation. Radios will be installed per MPD specifications.

Will you comply with these requirements?

☐ Yes ☐ No

2. Wireless Internet System

MPD will supply a WiFi/ Cellular internet system. Currently the Cradlepoint Router is being used, however Equivalents, which either meet or exceed the specifications contained herein, shall be considered. Ethernet cable will run to the MDC dock.

Will you comply with these requirements?

☐ Yes ☐ No

3. Roof Antennas

Three (3) external antennas (In K9 vehicles, there will be four (4)) will be installed on the rear portion of the vehicle. Installation jigs will be made to ensure antenna placement is the same on all vehicles. MPD will supply all needed parts for these three (3) antennas. MPD will supply radio/gps/internet-cellular-gps antennas. (K9 antenna will be supplied by upfitter, as it is part of K9 safety alarm system).

Will you comply with these requirements?

☐ Yes ☐ No

SECTION H – LOOSE EQUIPMENT

1. Fire Extinguisher & Bracket

One (1) Fire Extinguisher will be supplied by MPD. Location of mounting to be determined by MPD.

Will you comply with these requirements?

☐ Yes ☐ No

SECTION I – CAMERA SYSTEM

1. Dash Camera

MPD will supply the dash camera for the vehicle. It will be installed per MPD specifications and will not interfere with the air bags.

Will you comply with these requirements?

☐ Yes ☐ No

2. Prisoner Camera

MPD will supply the prisoner camera for the vehicle. It will be installed per MPD specifications and will not interfere with the air bags.

Will you comply with these requirements?

☐ Yes ☐ No

3. Wireless Mic

MPD will supply the wireless mic for the vehicle. It will be installed per MPD specifications and will not interfere with the air bags. The charger will be mounted on the prisoner cage and wired to the timed circuit to enable sufficient charging.

Will you comply with these requirements?

☐ Yes ☐ No

4. Camera Connections (Triggers)

Camera connections (Triggers) will be made to the emergency light/siren system and includes but not limited to: Siren, Warning Lights, Weapon Activation, Vehicle Speed, Brakes, Crash Sensor, Etc.

Will you comply with these requirements?

☐ Yes ☐ No

SECTION J – REFERENCE MATERIALS

1. Operating Instructions

The installer is required to provide written instructions for each type of vehicle. This must be available electronically as well. The installer must also provide training to MPD regarding operation, upon request.

Will you comply with these requirements?

☐ Yes ☐ No

2. Installation Sheets

The installer is required to provide installation sheets for every individual vehicle. This must be available electronically as well. This will provide information for service and warranty repair.

Will you comply with these requirements?

☐ Yes ☐ No

NOTE: All equipment costs will include any hardware needed for installation of equipment; All Connectors, Wire, Loom, S/S Hardware, S/S Brackets, Etc.

SECTION K – MANDATORY PRE-BID MEETING

All bidders are required to attend a mandatory pre-bid meeting to review a fully set up patrol vehicle, which will allow them to become familiar with equipment and operations of this MPD vehicle. **The meeting will take place on February 19th, 2018 at 9:00 AM CST.** This meeting will take place at the departments facility located at 1150 N. Alois Street in Milwaukee, WI, 53208. **All bidders must be present for the entirety of the pre-bid meeting. There will be no exceptions.**

Will you comply with these requirements?

☐ **Yes** ☐ **No**

Signature

Date